AMERICAN RAILROAD JOURNAL,

AND

IRON MANUFACTURER'S AND MINING GAZETTE.

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PRINCIPAL CONTENTS.

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PUBLISHED AT 105 CHESTNUT ST. PHILADELPHIA.

Saturday, February 19, 1848.

New Car Factory.

New establishments are rising up in various parts of the country, and especially in New England, for the manufacture of railroad machinery. We have heard favorable accounts of the new car establishment at Norwich, Ct., though we are not familiar with its extent, and ability to turn out work.

The following advertisement, however, indicates a readiness for orders.

Cornish Engines.

The number of pumping engines reported this month is 28. They have consumed 1,783 tons of coal, and lifted 17,000,000 tons of water ten fathoms high. The average duty of the whole is, therefore, 53,000,000 lbs., lifted one foot high by the consumption of 94 lbs. of coal. The boilers are leaky at Sims's engine, Carn Brea, Wheal Andrew, and Nangiles, and at United Hills.—"Lean's Engine Reporter," 10th Dec.

Heavy Locomotives.

The London Morning Post says, "it is stated that orders have been issued by the Great Western company for the manufacture of sixteen additional eight wheel engines of the class to which the 'Iron Duke' belongs. We believe that these engines will, however, be five or six tons lighter than the 'Iron Duke,' which we are informed, on good authority, weighs upwards of thirty-six tons when in working order."

Croton Aqueduct: By Schramke.

We have received from the publishers, Messrs. Wiley & Putnam, of N. Y., a copy of SCHRAMKE's description of the Croton Aqueduct, with 20 plates. This description is prepared by a gentleman who was employed upon the work, during its construction—as an assistant engineer, we presume—and who is therefore familiar with all its details. It is published in English, German and French, and will be found exceedingly useful to those who desire to understand its construction, its cost and its capacity. It is for sale by the publishers, 161 Broadway, New York.

Crimple Viaduct.

HARROGATE BRANCH OF THE YORK AND NORTH MIDLAND RAILWAY.—The closing of the last arch of this stupendous work was performed on Thursday, the 23d of December, amidst the cheers of the workmen, and in the presence of Messrs. Farrell and Sykes, the contractors. An idea of the extent of this viaduct may be formed from its dimensions. It is 1,848 feet long, 142 feet high; and consists of 31 arches, each 50 feet span. The first stone of the work was laid on the 29th April, 1846, so that, in the short space of 20 months, an unparallelled amount of masonry, consisting of those massive piers and lofty arches has been put together under the superintendence of John Cass Birkinshaw, Esq., engineer to the York and North Midland railway company, and his assistant, Arthur Thackeray, Esq., of Harrogate.

Mixed Gauge.

In the Journal for 8th January we referred to a plan of mixed gauge proposed by Mr. Wallace, for the connection between the Buffalo and Attica and the proposed Hornelsville branch of the New York and Erie railroad; and in reply to our inquiry we have received the following from Mr. Wallace in relation to the matter.

He says, under date of 9th instant,—

"The plan I proposed for running the cars belonging to the New York and Erie, or Attica and Hornellsville railroad company to Buffalo, was simply to use four lines of iron rails instead of two, making two tracks on the same ties, one within the other.

"Three lines of rails would answer the purpose, though not as well, as the cars in that case would regain double bumpers and couplings.

"Very respectfully yours,

"WILLIAM WALLACE."

The Peruvian Steamer Rimac.

This fine vessel is lying at the foot of Twelfth street. She is indeed a beautiful craft, coppered and copper fastened throughout, and of exquisite model. Her hull was built by Brown & Bell; her engines by Stillman, Allen & Co. They are of 450 horse power each. On her stern, which is round, are painted the Peruvian arms. She was to have left on the 28th of January, for Rio Janeiro and Talcahuanha, thence to Callao. She is pierced for six guns, and one large pivot gun in the bow which sweeps the half of a circle; and in addition to her steam power, is rigged as a first class brig. Her force will be sixty men, exclusive of officers, engineers, and firemen.

We had an opportunity, in December, of examining her, at the novelty works, where her machinery was built, and have no hesitation in saying that she is, in our opinion, one of the finest vessels of her class ever built.

Messrs. STILLMAN, ALLEN & CO. were also engaged upon the machinery for two of the Bremen line of steamers, the "Herman" and the "Franklin," besides two for the Panama line, and two others for Savannah.

They had between five and six hundred men at work when we were there, whose wages amounted weekly to about $5,000.

Main Stem, or Trunk Line, Railroads.

We have received the following queries in relation to the mode of operating, and the advantage of, trunk lines of railroad; but as the subject has not before been presented in this shape, we are not prepared to give answers satisfactory to our own mind; and therefore give them a place in the Journal, with the request that we may be put in possession of such facts, by those gentlemen who have had experience in managing or using trunk lines, as will enable us to answer the inquiries which are made for practical purposes.

The writer says "You will greatly oblige me by sending me as early as practicable, information on the following subject:

First. Is it practicable for two railroads to unite and run over one common trunk.

Second. If so, you will please state the examples of the kind either in Europe or in this country.

Third. Will you please state whether such unions have been beneficial or detrimental to the interests of the companies so united.

Fourth. Please give me your opinion and the best criterion you have, how such unions should be formed so as to be most beneficial to both companies."

The two first are easily answered, and the examples, in this country, are the *Worcester, Western, and Norwich and Worcester* roads, all using the Worcester road; and the *Eastern* and the *Boston and Maine* roads uniting at South Berwick, and using one track, 39 miles, to Portland; and formerly, for several years, the *Lowell* and the *Boston* and *Maine* companies used the road in common, 15 miles, to Wilmington—though the Boston and Maine road has now a distinct line into, and spacious depots in Boston—we rely therefore with confidence call, for this information, upon the superintendant of this road, CHARLES MINOT, Esq, who worked his road, for several years, at both ends, in common with other companies—and now works one part in common, and the other by itself, and has thus had every variety of experience in the matter.

We may also with equal propriety, and do call upon WILLIAM PARKER, Esq., of the Worcester, and JAMES BARNES, Esq., of the Western—who can, from experience, give the information desired.

We might also refer to the Baltimore and Ohio and Washington branch, but it would not be in point, as both roads are worked by the same company.

In England the *London* and *Brighton* and the *South Eastern* to Dover, use a common line from London to Reigate, 21 miles.

From Reigate to Brighton is 29½ miles, and branches 67½ miles, making a total of 97 miles.

The distance from Reigate to Dover is 67 miles, and the branches 60½ miles—total 127½ miles.

The passenger traffic on these roads is large, there being *ten trains* a day from London to Brighton, and also *ten* distinct trains for Dover, making 40 passenger trains per day, over the trunk road.

There are other companies in England which work on trunk lines, but the present policy in England appears to be to unite, or *amalgamate*, several connecting lines under one management, and thus avoid the difficulties which might possibly arise from separate or distinct management.

There are, undoubtedly, many places in this country where, by the construction of a trunk line, for a greater or less distance, important interior towns, distant from each other, may have railroad facilities, which they could not possibly have by entire and distinct lines; and the question with them is whether it is not better for them to have a railroad communication, even if it does diverge materially from a direct line, rather than to be for years without its advantages.

Whitney's Oregon Railroad.

We published in the Journal for 1st January, an article by Mr. Whitney, with maps, giving his views in relation to this vast project. One of those numbers fell into the hands of a gentleman in one of the northeastern States, who does not agree fully with Mr. Whitney, and he therefore sends us the following article in reply. As the writer only gives his initials, we do not feel at liberty to give his name in full; if we were to do so, he would be recognized as a gentleman of great intelligence and worth, who has done his country *important service, both at home and abroad*, and whose aim in writing is to be still further useful to his countrymen.

We shall at all times be pleased to hear from him, on this and other matters of interest, even though we may differ with him in opinion.

For the American Railroad Journal.

The communication of A. Whitney, dated Sept. 8th, 1847, published in the American Railroad Journal, of January 1st, has recently been brought under my notice by a friend at Washington. It appears to me that he has employed a volume of words and figures, to prove no more than what a smart schoolboy, tolerably conversant with geography, could have as well shown in a few hours, with a map of the world before him, and a pair of dividers, in his hand, viz: the distances between Charleston, Richmond, Baltimore, Philadelphia New York and Boston, by the way of Prarie du Chien, to some place not mentioned on the Pacific ocean, and from thence, to Japan, to the mouth of the Yellow river, and several other places designated in the Indian seas. As he finds the distance from the Yellow river to the west coast of America, and thence, across our continent, to New York, nearer than round the cape of Good Hope, in a rhapsody of delight he asserts that this shorter route "will secure to us the entire control of the commerce of Europe, with all Asia." Included in the word "all," Mr. Whitney appears to forget that there is a very considerable trade carried on by the Europeans and Americans with that part of Asia bordering on the Mediterranean, the sea of Marmora, the eastern coast of the Black sea, the east coast of the Red sea, the Persian gulf and the whole of Hindostan, Ceylon, etc.;—which it is not very probable will be sent to the west coast of America, to have the benefit of his railroad. Can any man, conversant with European politics or European interests, believe that three nations so jealous of their commercial interests, as are England, France and Holland, would give to the United States—their great commercial rival—the carrying monopoly of the immense productions which those countries respectively import from the East Indies, from China and the Indian islands for their own consumption, when the trade has been deemed of so much importance to each, that several wars have been entered into between them, during the last two centuries, to secure a monopoly of it. England considers the carrying trade, and the fisheries, as the nursery of her seamen, the source of her naval superiority and commercial ascendency. About two centuries ago she passed the Navigation act, and went to war with Holland to wrest from her the carrying trade; at a later period, with France, to expel the French from Hindostan, in order to monopolize the trade of that immense and fertile country; and all the wars that those nations entered into prior to the French revolution, were largely influenced by their commercial interests. Yet Mr. Whitney thinks, or wishes to make Congress believe, that those nations will send their goods to some American port on the Pacific, (and the vessels go back empty) to be carried by railroad to New York or Boston, and there re-shipped, when the goods can be freighted round the cape of Good Hope to the ports of those respective nations, in their own bottoms, at about one-third or one-quarter the expense. From the mouth of the Ganges via the straits of Malacca, to the strait of Juan de Fuca, thence to New York by railroad, and thence to Falmouth, the most westerly part of England, it is nearly two thousand five hundred miles further than it is round the cape of Good Hope to Falmouth; the latter route saving in addition the great expense, risk and delay of unloading, transportation by railroad across our continent, and re-shipping at New York. The insurance alone to the strait of Fuca, across America and to England, would be four times as much as by the cape of Good Hope, if it could be done at all. So far as it applies to Great Britain, the goods must be carried from N. York or Boston to England in their own bottoms, as the navigation act would not allow of their being carried in any other. But if distances and despatch only are to be taken as the basis of calculation, in order to secure the commerse of foreign nations, as Mr. Whitney says, how does it happen that the Venetians, who were the most active, most intelligent, most industrious and persevering commercial State that ever existed in the south of Europe, who had enjoyed, nay monopolized the East India commerce through the Red sea, and down the Nile, for several centuries, with all their capital and skill, could not compete with the rest of Europe for this commerce, after the discovery of the passage round the cape of Good Hope, although then conducted in a very unskilful manner; and why has not England since the invention of steam vessels returned to the ancient channel of the Indian trade? The voyage from Canton, Calcutta, Bombay and other ports on the route to Suez, at the head of the Red sea, affords the greatest facility for steam navigation; as, during the whole route, steamers would find safe ports at convenient distances for a supply of fuel, etc. From Suez, it is about 100 miles across a level country for a railroad to the Nile, and from Alexandria to Trieste, or to Marseilles, or to Malta, Gibralter, Lisbon and Falmouth, there is an unobstructed and safe steam navigation, and yet among all the projects with which the hot bed of speculation teems in England, no man has been visionary enough to suggest that the voyage round the cape of Good Hope in sail vessels with bulky commodities should be given up for that through the Red sea, and Mediterranean, in steam vessels. For the Indian mails and passengers, the latter route has been adopted for several years. But the passengers have been confined to the wealthy, who valued shortness of time more than money; the poorer travellers, who value money more than time, still going by the cape, and this is the route of the East India companies servants, and the soldiers. But Mr. Whitney has determined that the route shall be across the Pacific and the American continent, and displays much tact in passing over difficulties, which would interfere with the calculations of a more timid projector. Experience has shown that fifteen hundred to two thousand miles, is distance enough for depots of coal for ocean steamers, intended for freight or passengers. The British line of steam packets to New York experienced a series of disasters in several instances from shortness of fuel, and could not be sustained. The Cunard line from Liverpool to Boston, by stopping at Halifax both

ways for fuel, and aided by the British government, with £50,000 sterling per annum, have done well. But the French line of steamers from Cherbourg, so far, has been a failure—one putting into Marthas Vineyard for want of coal, and the passage of the other being lengthened by heavy westerly gales, from the same cause was obliged to put away before the wind, and got into Coruna. Now, across the Atlantic is about three thousand miles, and the two lines of steamers which have attempted the trade without an intermediate stopping place, have been unsuccessful. Yet Mr. Whitney assumes it as a settled question, that steamers can navigate from China to the west coast of America with perfect ease, a distance of about 7000 miles, without one stopping place. From the Japanese islands to America, between the parallels of 30 and 50 degrees north, a distance of near 90 degrees of longitude, there is not one inhabited island, or, probably, one capable of being inhabited. As to the Sandwich islands, they lay in 21 degrees north, and the angles out of the direct course would increase the distance about one-fifth to one-fourth, making bad worse. So far as the trade with Japan is concerned, Mr. W. must be experimenting upon the credulity of the public. The only European nation tolerated there is the Dutch, and they are only allowed a limited trade, under surveillance, by forswearing the Christian religion. What prospect we have of opening a commercial intercourse with them, the Japanese authorities lately showed by their prompt rejection of the commercial relations proposed by the commander of our vessels of war, the requisition for the immediate departure of that ship, and the inhibition of their harbors and waters to our flag for the future. It is a well known fact, that by far the cheapest kind of transportation is that on board of ships navigated with sails; the next is in canal boats drawn by horses, or in freight boats towed by steamboats; the next by steam vessels; the next by railroads; and the dearest of all, the carrying in wagons or carts drawn by horses or oxen, or that on the backs of mules and camels, horses and asses. It must follow that ships with sails will always be the carriers of all bulky commodities for long distances—such as teas, Java and Sumatra coffee, Sumatra and Malabar pepper, Manilla hemp, etc., etc.; but where the saving of time is the great object of calculation, such as in the carrying of passengers and the mails, steamboats and railroads will be preferred. But there are other objections to Mr. Whitney's project, of so serious a description, that it appears to me they cannot possibly be overcome. One of the objections which he very gravely urges against the Panama route, is the want of a good harbor as a depot for the Chinese productions. Will Mr. W. be pleased to inform the public where he can find one in the Oregon territory? Mariners know that there is a bar across the mouth of the Columbia river, and that when the wind blows from the sea board, which is a considerable portion of the year, there is so tremendous a surf breaks upon it, as to prevent all ingress or egress for vessels of any class. In the strait of Juan de Fuca, in 49 degrees of latitude, doubtless a good port may be found; but the country, in that latitude, is of so mountainous a character that it would be difficult to make a railroad there. From this strait to the bay of St. Francisco, laying in about 37 degrees of latitude, there is not a single safe harbor on the coast. To get to the bay of St. Francisco, which contains a good harbor, the railroad would be obliged to cross the Sierra Nevada, which, from all accounts I have seen, presents an impassable barrier to a railroad. The next objection is, the enormous expense that would attend the building of a railroad from lake Michigan to the Pacific ocean—a distance of about two thousand miles. The cheapest railroad that I have known built, completed for use, with steam carriages, cars, etc., etc., have cost about twenty thousand dollars a mile, and many, through a hilly, rocky and mountainous country, have cost more than double that sum. As almost all the materials, for the construction of the Oregon railroad, must be transported through a wilderness country, at a very heavy expense; and, for four or five hundred miles of the way it is said there is a scarcity of trees for timber, or even for fuel, as well as of water, we may assume that this railroad will cost at least thirty thousand dollars a mile, with cars, engines, etc.; which will amount to sixty millions of dollars for the whole route—an enormous expenditure of money for a railroad through a wilderness country. But Mr. Whitney contends, in one place, that the value of the land sixty miles wide on the route, will build the railroad. But, in another place, in order doubtless to induce congress to grant him the sixty miles wide through the whole distance, he seems disposed to undervalue the land. Now, if the land is waste and worthless, how can he sell it to raise funds with which to build the road? To my simple apprehension, there is here a palpable contradiction. On the reverse, if the land is good, which is obviously implied from his assertion that a railroad can be built with it, if a grant is obtained, I contend that the granting of 120,000 square miles of land to build a railroad through a wilderness country, would be a most outrageous waste of the public property. I know that it is urged that the wilderness, along the whole of this route, is by means of the railroad to blossom like the rose. I see that puffing will never be out of fashion, and Mr. Whitney displays no ordinary talent in this line. Perhaps, in the neighborhood of the Michigan and Mississippi, and on the borders of the Pacific, it might much accelerate the settlement and cultivation of the soil; but, for eight hundred or a thousand miles of the interior part of it, it will be likely to remain a wilderness for generations to come. When the Long Island railroad was contemplated, there were many suggestions put forth that it would greatly contribute to the improvement of the lands along the route, and what has been the result? Why, the lands remain precisely as they were, and the shares, which cost fifty dollars each, are selling at twenty-three. It will be well for Mr. Whitney to inform the public how he means to guard the railroad against the depredations of the Indians. It is well known that they are extremely jealous of any encroachment of the white man on their hunting grounds; and can any one believe that so vindictive a people could forego the opportunity of destroying the track through their country. Why, the value of the iron alone, without being stimulated by revenge, would be a sufficient inducement to them to do it. In order to make his project appear the more plausible, Mr. Whitney has been pleased to state that freight could be carried over the road at a half a cent per ton per mile. This assertion savors much of poetical license; it is certainly not predicated on known facts. It must be evident that where a great number of passengers pass over a railroad with a large amount of freight, the fare of the passengers and cost of freight can be afforded at much lower rates, than they can, when the passengers are few and the freights small. Perhaps no railroad in the United States has so large a quantity of freight passing over it as has the Western, and the cars are also filled with passengers, and yet they charge four dollars per ton for heavy goods, and seven dollars for light, from Albany to Boston, a distance of 200 miles. At the same rate, the freight from New York to the Pacific—a distance of 3000 miles—would be sixty dollars per ton for heavy, and one hundred and five per ton for light goods.—Now if his assertion has any approach to truth, there must be great extortion on this route—a thing not to be believed when we recollect that there is both steam and sail vessel navigation, from Albany to the city of New York, which compete with the railroad. His assertion, too, is made more incredible, as west of the crossing of the Missouri, a distance of about 1500 miles, through a wilderness country, there is not much probability of there being five passengers or five tons per trip, for a half a century to come, which would not pay the wear of the track. But if Mr. Whitney can coax Uncle Sam to give him territory equal in surface to fifty German principalities, it will smooth all difficulties. Instead of his extravagant project, will Mr. Whitney allow me to recommend that about a fifth part of the value of the lands for which he petitions, be appropriated to clear the western rivers of sawyers and snags, to improve and form harbors on the lakes, and to fill up the breaks in the railroad from Washington, D. C., to Stafford county, Va., from Raleigh, N. C., to Columbia, S. C., from Atlanta, in Georgia, to Chehaw, in Alabama, and to continue it from Montgomery, in Alabama, to New Orleans. Those parts and the continuation would make a continuous line of railroad from Portland, and soon from Augusta, in Maine, to New Orleans. The reciprocal interest which would grow out of this rapid intercourse, would wear off prejudices, beget good will, secure harmony, and bind the Union together in a silken band. This route, too, would obviate the delays now complained of in the southern and southwestern mails, would pass through the most densely populated portion of the United States, would accommodate the commercial travel of our business men, and our health and pleasure seeking population from north to south in the autumn and winter, and from south to north in the latter part of spring and early part of summer. From this main line, lateral branches are and would be extended to the western sections of the Union, as business or convenience should call them into being. By this plan, twenty millions of people would be directly accommodated and benefitted, which to my plain common sense view of the subject, would be immeasurably better than to attempt to scale the Rocky mountains by steam, or the mountains bordering the straits of Juan de Fuca or the Sierra Nevada, or contending with the Indians for the right of way, and frightening away the grisly bear, the buffalo and deer, by the hissing of safety valves, particularly as the two latter animals may be essential for food on the route. But Mr. W. asserts that much of the southern country is unfit for a railroad, owing to its swamps. Does he not know that most of the southern swamps are filled with cypress and Juniper, a fine timber ready at hand to be driven as spiles for a solid foundation for a railroad track. So far as any conclusion can be drawn from the experience of Europe and the United States in regard to railroads, Mr. Whitney's project wants all the essential elements of success.—Whenever railroads have passed through an active, agricultural, mechanical, manufacturing and commercial country, they have proved eminently beneficial to the country at large, and profitable to the projectors; but where these elements have been wanting, they have been a loosing concern to the stockholders, and have not been attended with much

advantage to the public. Should, half a century, or a century hence, the Oregon territory become densely populated, and the country west of the Mississippi be filled with inhabitants, a railroad from the Atlantic border to the Pacific would become an object worthy of public attention; but fifty or a hundred years in advance of such a state of things, it must to every sober minded common sense man be deemed too visionary a project for the grave attention of the legislature of the Union. W. J.

[With all our respect for the opinions of our intelligent correspondent, we must say that we think he is behind the age. If he will only measure the future by *his own ample* experience, he will see that *half* a century will give us a population of over *fifty*, and probably *sixty* millions! and we do not hesitate to predict that, long within that period, there will be at least *two*, if not *three*, lines of communication—either by railroad, or railroad and *canal*—between the waters of the two oceans, and that the Oregon, and the Californias, will be as densely populated as was his own beautiful valley when he first visited it.

It must be borne in mind that the impetus of the *present* day, as compared with that of half a century ago, is as *Col. Bomford's Columbiad*—manufactured by ATORR, at East Boston, which throws a 12-inch ball *three miles*—compared with one of Colt's revolvers.—Ed. R. R. J.]

Napier's Foundry.—Cunard Steamers.

The machinery of these vessels, says the Scientific American, is all prepared and fitted up by Robert Napier, engineer, Glasgow, Scotland. His foundry is in Washington st., named by the inhabitants of that city after the admired father of our country. Mr. Napier employs about 1500 hands in his foundries, and makes it a rule to keep none but steady, sober men in his employ. He has long stood at the head of British engineers, at least for steamboat machinery, and the most perfect machinery in the world for this kind of work has been invented by himself and fitted up under his instructions. The new Cunard line of steamships to ply between Liverpool and New York, from accounts which we have received from time to time, will be something to excite wonder and admiration. The pistons of the cylinders are of brass, each weighing about four tons, ninety inches in diameter and of proportionate thickness. The cylinders are ninety inches in the diameter of bore and near ten feet in length, and turned on Mr. Napier's lathes as easy as if they were flutes, and with the utmost mechanical precision. Mr. Napier is at present fitting up a frigate for the British government with peculiar machinery. The frigate is called the dauntless, and is of 1500 tons burthen, with engines of 580 horse power, and all the boilers and machinery so arranged as to be lower than the surface of the water. The engine works horzontally, like that of a locomotive. It is fitted with a screw and the wheel and pinion are therefore used. The wheel, with the crank and axle, weigh about eighteen or nineteen tons. It is nine feet ten inches in diameter, and four feet broad on the hem. The hem is divided into three breadths of teeth, the middle row catching between the strokes of the teeth of the outside rows, in order to lessen the noise and friction. Each tooth occupies about six inches of the wheel, and what is not a little singular in that iron country, they are made of wood. The engine is made to perform thirty strokes per minute, and the screw to make seventy revolutions. This vessel is to be one of the finest pieces of workmanship ever finished in Mr. Napier's foundry, but they do not calculate it to run more than 12 miles per hour.

Railway Accommodation.

A writer in the London Morning Herald thus compares the relative accommodation afforded by the "*London and North Western* and the *Great Western* railway companies." The editor says,—

In our previous notice we mentioned what we considered the superior advantages conferred upon the public by the Great Western company, in the amount of second class accommodation, and the rates of speed at which their ordinary trains travel. We shall now point out some of the superior advantages given to first and second class passengers by the London and North Western company in respect to the rate of fares charged for single tickets over any portion of the rail, and for double tickets for a distance over which they can be conveniently used.

The advantage which the Great Western system of fares possesses over that of the London and North Western company consists in the period for which the return ticket is granted, and in the extension of the return ticket system to passengers by the express trains. If the passsenger is proceeding by an ordinary London and North Western train, and does not require a return ticket, he is charged considerably less than he would have to pay if he were, under similar circumstances, travelling upon the Great Western railway. The first class passenger taking a single express ticket to Exeter, 194 miles, pays 50s.; but to Liverpool, 200 miles, he pays 45s. By the ordinary trains, the first class fare to Liverpool is 37s., but to Exeter it is 44s. 6d., while the second class fare to Exeter is 30s., and to Liverpool 27s. To those passengers whose business will detain them a day in Liverpool or Manchester, the return ticket of the Great Western offers an important pecuniary advantage over the fare system of the London and North Western; but we are inclined to believe that the number of persons who avail themselves of the advantages of return tickets for through journeys of a couple of hundred of miles is very far below that of the passengers who can make use of a single ticket only. Where one Exeter passenger enjoys the benefit of the return ticket system of the Great Western, perhaps ten Liverpool or Manchester single ticket passengers—persons to whom return tickets offer no benefit—reap the advantage of the lower fare of the London and North Western company. Low fares *must* be a saving to all passengers; return tickets can be economical to a very small minority only of them. The shorter the journey made by the traveller, the less comparative saving does the Great Western return ticket system secure to him. If we deal with the traffic between London and Bristol, and London and Birmingham, we shall find that while the return ticket system of the London and North Western company affords a very reasonable amount of accommodation, the *low fares* of that corporation show a very important money superiority over the charges of the Great Western company. The first class passenger, by the ordinary trains to Bristol, 118 miles, pays 27s., but to Birmingham, 112 miles, he pays 21s. only. The second class fare by the same trains, to Bristol, is 18s. 6d., while to Birmingham it is 15s. The advantage in favor of the traveller taking the return ticket is of course greater. If he proceed by the 8 30 morning train from Euston square, he arrives in Birmingham at 12 o'clock, and can devote a clear five hours to business before the starting of the 5 45 afternoon train, which reaches London at 10 10. He can have nearly the same time in London if he take a return ticket from the Birmingham office. The money advantage that he reaps is as follows:—the first class return ticket, to Bristol and back, by the ordinary trains, is 36s., to Birmingham 28s.; by second class to Bristol, 24s. 8., to Birmingham 20s. Again by first class to Chippenham 94 miles, and back it is 32s. 3d.; to Coventry and back, the same distance, it is 23s. 4d. only; by second class to Chippenham, 19s 4d., and to Coventry 16s. The first class return ticket to Slough, 18 miles, and back, is 5s. 4d.; but to Watford, 18 miles, and back, it is 4s.; by second class to Slough, and back, it is 3s. 4d., and to Watford 2s. 8d. These are very material differences in favor of the London and North Western company. The period allowed by the Great Western for the use of return tickets, viz:—One day for 50 miles, 100 miles two days, and above 100 the same on either of the two next days, is a considerable benefit, but it is a benefit conferred comparatively upon a few; while the advantage of the cheaper fares of the London and North Western is felt by *every person* that travels upon the line. The Great Western may point to its *tens* of passengers who are benefitted by the broad gauge system of return tickets, but the London and North Western can show the *hundreds* that enjoy the general advantages of the narrow gauge low rate of fares.

We have not space at command to go into the general question of fares, and to examine how far the amount of population in the respective districts through which the two companies' system of railways run, induces, and perhaps justifies the difference in the fares charged; we merely state facts that have reference to the amount of accommodation given upon the lines in question. Nor are we to forget that while a numerically superior through traffic may enable the London and North Western to reduce their fares to rates that perhaps would scarcely pay the Great Western company, the latter are giving the greater amount of accommodation, to districts far inferior in commercial importance and point of population, to those traversed by the London and North Western railway. If we mistake not, the Great Western company are bound by act of parliament to lower their fares upon the opening of the Birmingham and Oxford line. The fares

will then be, we believe, 2½d., 2l., and 1d. per mile; *quite low enough* without the *present* Great Western system of return tickets.

Parcel Traffic on the English Railways.

This subject is attracting no little attention in England at this time. And it bids fair to become a bone of contention between the post office department and the railways.

We agree fully with H. C. that it is time for the railways to organize a system for the prompt and safe delivery of parcels, as it may, by judicious management, become a source of considerable profit.

We copy the following article from the London Railway Chronicle of 1st January, and shall give the subsequent numbers when they come to hand.

Practical Suggestions for Increasing the Parcel Traffic on Railways, with Profit to the Companies and Convenience to the Public.

The object of the present and the following papers is to call attention to the existing relations between the post office and the railways, and to offer some suggestions to the consideration of railway directors, which are calculated, I believe, if carried into effect, to increase the traffic and profits of railways, in affording the public better arrangements in the transmission of small parcels. The successful result of my suggestion for adopting quadruple rails on the London and North-Western railway, which you printed (*Rail. Chron.* 1846, p. 1119,) emboldens me to ask you to give circulation to the present papers, although they extend to some length. Consistent advocate as you are for maintaining the best interests of the railways, it is proper I should ask this service of you, intended as it is for the benefit of railways; for I would beg leave to state, most emphatically, that it is not my intention, in the present case, to ask the companies to make any sacrifice whatever; and unless it is clear that my suggestions involve no risk of the present earnings of railways. I certainly do not urge the adoption of them. H. C.

1. Next in importance to the conveyance of letters, is the conveyance of small parcels. Letters now go through the post office as cheaply as can be desired at a uniform rate assessed on the weight; and many "letters," so called, are really parcels. But small parcels transmitted by railways are subjected to charges regulated by little, if any principle at all, and to charges almost as variable as those for letters used to be before the advent of the penny post. Almost every metropolitan railway has a different scale.

2. Circumstances of late years have caused me to watch with interest the progress of the post office and of the railway system, and I think it may be shown that the time has now arrived when the question will soon be practically settled, whether the government, thro' the agency of the post office, or the railways themselves, will assume the conveyance and systematic delivery of small parcels generally throughout the kingdom. At the present time, the traffic of small parcels is managed by three great independent agencies, antagonistic in interest to each other—the post office, independent carriers, and the railways: not to mention that amount of traffic which is carried on illicitly in one sense by enclosing many small parcels in one large one.

3 Already the post office has attracted to itself the carriage of all small parcels which are sufficiently valuable to bear the rates of postage. The post office undoubtedly obtains *all* legal documents. Besides, all those parcels on which the post office charge is cheaper than that of the railways, fall into the hands of the post office, as in the case of parcels sent long distances: thus, for a parcel of the weight of a quarter of a pound sent from Cornwall to Inverness, the postage would be 8d., whilst the railway carriage would be at least 4s. Many other parcels go through the post because the opportunities for receipt and delivery by the post office agencies are more facile and certain. And it may safely be assumed that the post office attracts to itself almost all parcels whatever the postage of which is under 6d., that amount being the *lowest* sum for which any parcel can be despatched by the metropolitan railways.

4. The carriage of parcels by the post office was a novelty introduced by the plan of penny postage. Before the year 1840, the post office was accustomed to take no parcels but of stamps and of documents for the public departments. But the cheapness of the rate and the adoption of a system of charging by WEIGHT by the post office, having created for that department a large and daily increasing parcel business. It must not be forgotten that a parcel post is entirely a novelty of our own times. So great a novelty, indeed, did it seem to be, that it was denounced by certain post office authorities themselves at the outset of the penny post as "illegitimate" correspondence.

5. When this change came about, railways were developed in a very moderate degree. The immediate result of the new postage system was to create for the post office a small parcel business, in which the post office was able successfully to compete with the old stage coaches and mails, by offering greater economy, safety, and, in many cases, greater expedition. Seven years ago it was a marvellous boon to the public to enable them to frank a parcel of a pound in weight for 2s. 8d. from Land's End to Inverness, or from Dover to the West of Ireland; and the consequence was, an instant transfer of the small parcel trade from the then accustomed channels into the hands of the government.

6. Circumstances were peculiarly favorable to the change at that period, for the traffic of the country was vibrating, as it were, between railways, canals, and coaches; so that, all these interests being in a state of transition and hostility to each other, the small parcel trade was quietly taken possession of by the government, without an audible murmur of opposition from any of the interests most affected by the change.

7. The experiment of adopting a uniform rate of charge by weight has proved to be most successful. It would be an idle dream to believe in its recall; and it is quite clear that circumstances will force a very great extension of the principle of a parcel post at no distant day.

8. The parcel post is decidedly the most profitable part of the post office business. It is also conducive to public convenience in the highest degree. In due course, these circumstances alone would effect the extension of the system. But the railway interest should be reminded that there exists a distinct pledge from the energetic and talented post office reformer, Mr. Rowland Hill, more than once officially repeated, that the carriage of parcels, *without limit as to weight*, and at a LOWER RATE even than a penny per half-ounce, is a feature of his postage plan.

9. In Mr. Hill's correspondence with the treasury in 1843, (p. 25,) among "the measures for affording increased facilities for post office distribution" remaining to be carried out are enumerated:—"An increase in the allowance of weight, say 2 oz. for a penny, in all district posts." This is repeated at p. 5 of "Requisites for the completion of Mr. Rowland Hill's Plan of Post office Improvement," published by C. Knight, 1843. In the same correspondence, at p. 26, we find Mr. Hill insisting on "the relaxations of the present restrictions as to weight. The establishment of A PARCEL POST AT REDUCED RATES, SIMILAR IN SOME RESPECTS TO THE BANGHY POST IN THE EAST INDIES."—At "*reduced rates!*" The restriction to the pound weight to be relaxed, and not only is this to take place, but the "rates are to be reduced." Nothing can be clearer in intention than this. And Mr. Rowland Hill is not the man to abandon a good intention when he has once promulgated it. The carrying of the penny post is a sufficient token of this. His patience and perseverance are as great in their way, as those of a North American Indian, abiding the advent of his foe. It should also be remembered, that Mr. Rowland Hill, from his official capacity in the post office, is now in a position to effect his own proposals; and we may assume with perfect confidence that most assuredly he will do so. Do not forget, also, that when once the public mind is sufficiently alive to Mr. Hill's intention, as it will be in due time, the public will assuredly support Mr. Hill, and demand the extension of the parcel system through the post office. Your own columns have already recorded the fact that an act of parliament has altogether removed all former restrictions as to weight, formerly limited to 16 oz.; and the same act provides, that in all cases in which "the British postage chargeable *on any letter* sent by the post shall *exceed the sum of one penny*," the treasury "may REDUCE SUCH POSTAGE TO ANY OTHER RATE they may from time to time think fit." So that parcels might henceforth be taken by the post office at 1d. per pound. Let not railway directors supinely imagine that this act is going to remain a dead letter with Mr. Hill, acting as secretary to the postmaster general. It is not for Mr. Hudson to indulge in any such daydreams.

10. Not only has Mr. Hill a very positive intention of relaxing the restrictions on weight and reducing the rate of charge, but he has also very decidedly manifested intentions of establishing more frequent mails on railways.

When chairman of the Brighton railway, he pursuaded his company to take four mails daily to Brighton without charge to the government. Moreover, coupled with Mr. Hill's intention of getting more work out of railways, we have evident signs that government purpose to pay their own price, i. e., to pay LESS FOR IT. Railway interests hardly need to be reminded, that Mr. Strutt actually proposed to make a government board resolve absolutely and definitively what government should pay to the railways for the carriage of the mails?

11. The obvious tendency, then, of present circumstances, is to compel the railways to perform the mail service for next to nothing. And when this is accomplished, the post office will successfully compete and carry off all the small parcel trade, whilst the public, not too tenderly disposed to railways, will look on and applaud lustily!

12. The post office certainly will carry out this scheme for the public to the injury of railways. But cannot the railways plan another, and as good, or perhaps a better one for the public, and for their own great profit and popularity beside? I think they can.

13. What then should the railways do? Ought the railways to remain passive and submit to the total abstraction of their small parcel trade, or ought they to compete with the post office, and show that they can conduct it as cheaply, or even more cheaply—that they will not only keep what they have, but actually regain what they have lost, and generate besides a new and illimitable species of traffic? The carriage of small parcels may be said to be by far the most profitable part of railway receipts. It will be sufficient to examine the receipts of any one established working railway, which may be assumed to be a fair average of all, to prove this. All parties will agree that no better illustration can be taken than the London and North-Western railway.

14. Without pledging myself to the positive accuracy of the following accounts, I believe that an analysis of the accounts of the London and Birmingham railway for six months, ending the 31st of December, 1845, will be found to show that the profits on small parcels were at the rate of as much as 80½ per cent, being the very highest rate of profit on all kinds of traffic, as appears by the following table:—

	Per centage of charges to receipts.	Per centage of profits to receipts.	Proportions of profit taking the whole at 100
1st class passenger,	33·32	66·68	31·60
2d "	29·91	70·09	28·96
3d "	29·16	70·84	9·35
Horses	61·21	38·79	0·97
Carriages	81·22	18·78	0·29
Parcels and dogs	19·63	80·37	7·33
Post office	36·21	63·79	1·46
Goods and coals	35·20	64·80	17·16
Stores			
Oxen	43·76	56·24	1·22
Sheep	26·16	73·84	1·30
Pigs	39·93	60·07	0·36

15. The receipts and charges of the London and Birmingham for six months, ending 31st of December, 1845, per mile apportioned to respective items of traffic, are shown to have been as follows:

	Receipts.	Charges.	Net receipts per passenger, etc.
	d.	d.	d.
1st class	2·495	0·831	1·664
2d "	1·628	0·487	1·141
3d "	1·000	0·292	0·708
Horses	4·559	2·815	1·784
Carriages each	4·882	3·965	0·917
Oxen	0·849	0·371	0·478
Sheep	0·158	0·040	0·118
Pigs	0·151	0·003	0·091

Profits from Goods, Parcels, and Post office, per ton per mile.

	Receipts.	Charges.	Net receipts per ton, etc.
	d.	d.	d.
Goods	1·726	0·608	1·118
Parcels	18·166	3·566	14·600
Post office	9·995	3·619	6·376

16. The first table also shows that the proportionate profit on parcels is as much as 7½ per cent, of the whole profits of that line. Considering the length of this line (112 miles,) the time it had been worked in 1845, and its excellent management, its profits on parcel carrying may be taken as a fair average either of what railway parcel business is, or is likely to be. Surely railways cannot be prepared to surrender this 7½ per cent. of profit, or even so much of it as may be supposed to belong to the carriage of the smaller parcels, to the post office, without some effort to keep it.

New York and Boston Air Line and the Hudson River Railroad.

We have before us the reports upon these two important lines, the first by E. F. JOHNSON, and the latter by J. B. JERVIS.

These lines are peculiarly situated—both being *rivals* to the two cheapest routes, of equal length—for *two-thirds* of the year, in the country; it is therefore necessary that they should be constructed in the very best manner to compete successfully with the present lines to Boston, and the Hudson river.

The "air line," as it is termed, has to cross the Connecticut river at Middletown, and of course, it has to contend with a strong opposition from Hartford, and others interested in the railroads to be affected by its construction.

The report of Mr. Johnson is drawn up with his usual ability and cleanness—and, as it discusses the subject of grades and curves, and compares this line with another now in successful operation—as well as the subject of *draw bridges*, we propose to give a considerable portion of it, that the advantages and disadvantages of the line may be compared by our professional readers, and others, if any, who doubt its success—which we do not if it is properly constructed.

In distance, grades and curvature, it has the advantage of the Hartford and Springfield route, but not in the total amount of rise and fall—which is on the Springfield route 3,150 feet rise and fall—equal to an *average* of 19½ feet per mile—while on the air line the total is 4,100 feet rise and fall, or an average of 30 feet per mile—yet Mr. Johnson makes it out decidedly the best route for the traveller, and equally as good for the stockholder.

We will, however, give Mr. Johnson's arguments in his own language, which we could not improve upon if we tried.

The report of Mr. Jervis is equally interesting and important on the subject of *grades*, as his line has even a more powerful competitor in the Hudson river boats than the "air line." Above Fishkill Landing he has two routes between which to choose—one with grades of 17 feet, and the other with grades of 10 feet; on the first the *total* rise and fall is 1,051 feet, and on the other 153 feet, and it therefore becomes a serious question between the people occupying the more elevated ground, and those residing on the margin of the river and the lower grade, which line to adopt. To enable the directors to decide this question, Mr. Jervis goes into an able investigation of the subject of *grades* and traction—showing the great advantages of the lower line over the upper; and as we are satisfied that these investigations, by such men as Mr. Jervis and Mr. Johnson, will be useful to the cause, we shall also give such parts of Mr. Jervis' report as bear upon this subject, at an early day, but as we received that of Mr. Johnson first, we commence it in this number. He says:—

The point in the City of New Haven, selected as the most suitable for the commencement of the surveys for the New York and Boston railroad, is the intersection of the survey made for the New York and New Haven railroad with the New Haven and Hartford railroad, at the west end of the railroad bridge over Mill river, near the eastern limit of the city.

From this point towards Middletown, two routes are practicable. One passing from the Quinnipiac to the Farm river valley, and thence by the valley of West river, to Middletown, through North Branford and Durham, following near the turnpike between New Haven and Middletown, being the same route surveyed by Mr. Twining for the New Haven and Hartford railroad in 1835, and represented upon the large map of his survey. The other pursuing a more northerly and direct course, following the valley of Mud creek, a branch of the Quinnipiac river, thro' the eastern part of Wallingford, to a depression in the ridge, which separates the waters of that stream from those of the Connecticut river, known as Reed's Gap, in the southwest part of Durham, and thence intersecting the first line in the valley of West river, in the southwestern part of the town of Middletown. From thence keeping the valley of the West river, upon its east side to the Connecticut river, near the ferry in Middletown.

From the crossing of the Connecticut river eastward, the line as surveyed keeps the general direction of the Colchester turnpike, (crossing it several times,) for about ten miles, when it enters the valley of the east branch of Salmon river, in Chatham, which it follows to its source near the dividing line between the towns of Hebron and Lebanon.

From thence it descends along the valley of the Ten Mile river, a branch of the Willimantic river, and crosses the latter near the village of Willimantic, which is situated in the town of Windham.

From this village the survey was carried along the valley of the Natchaug river, (a stream which, when united with the Willimantic river in Windham, forms the Shetucket river,) for four to five miles, thence passing to a depression in the ridge on which the village of Hampton is situated, which

separates the waters of the Natchaug from those of the Little river, a tributary of the Quinnebaug.

From this point, two routes were examined to the Rhode Island line, one passing through Brooklyn and Danielsonville; the other pursuing a more northerly course, both uniting before reaching the Rhode Island line, at a point east of the Quinnebaug river, in the valley of the Five Mile river, a tributary of the Quinnebaug from the east.

The termination of the survey, at the Rhode Island line, is near the northeast corner of the town of Killingly, and near to a depression in the ridge, which separates the waters of the Quinnebaug river from those of the Blackstone and Ponagansett, or Pawtuxet, in Rhode Island.

This summit is the lowest point in the dividing ridge for some distance north or south, and in a topographical view, is the only suitable point for the location of a line passing by the most direct course "towards Boston."

The Rhode Island line is as far east as instrumental examinations have been made, under my direction.

The general course of the line as described, is very direct. The greatest deviation from a straight course, is at the crossing of the Connecticut river, rendered necessary, principally, by the impracticability of the ground in the vicinity of the river, which can only be avoided by a deflection to the north or south, the former involving the least sacrifice of distance, and of other considerations.

The impracticable ground referred to, is the continuation south of the Connecticut river, of a primitive range of elevated ground, forming the eastern boundary of the Connecticut valley to the north, and through which the river flows, the opening affording a passage for the railroad, requiring in consequence a much less maximum elevation to be overcome, than would be the case upon any practicable line or route, lying across the same range at any point farther north, either in Connecticut or in Massachusetts.

The general features of the line as surveyed, are indicated by the following elevations above tide water of the more prominent points.

Line at point of starting at New Haven above tide water	20 feet.
Reed's Gap	345 "
Connecticut river	35 "
Highest point between the Connecticut and Willimantic rivers	490 "
Natchaug valley	191 "
Highest point between the Natchaug and Quinnebaug rivers	542 "
N. crossing of the Quinnebaug	248 "
State line near Rhode Island summit	500 "

Total distance 83 1-10 miles.

Sufficient examinations were made to show that a more favorable position could be obtained for the line at several points, than was adopted in the survey. * * *

The gradients upon the line, as surveyed, vary from a level to fifty-five feet per mile, ascending and descending. The extent of gradient exceeding fifty feet per mile, is nine and three-fourths miles, in planes averaging half a mile in length, each, two miles of which is ascending towards the east, and seven and three-fourths miles descending in the same direction. The line where the highest grades occur, is free from curvature. Three miles nearly of this portion is upon side lying ground, and may be reduced below fifty feet per mile, without adding to the cost, and the whole may be brought down to that limit, without very greatly adding to the expense of construction.

These rates of inclination are fully within the safe and effective range of locomotive power, as will be evident from the fact, that gradients of fifty feet per mile and upwards, are to be found upon several of the prominent railroads of the country.

Upon the Western railroad in Massachusetts, the maximum inclination of the gradient east of Connecticut river, is 66 feet per mile, and upon the portion west of the river it is 83 feet and over per mile. Upon the New York and Erie railroad there are several places where the gradients rise to the height of sixty feet per mile, and there are very many other roads, where the maximum gradient exceeds fifty feet per mile. Upon the New Haven and Hartford road, the maximum grade is 48½ feet per mile. The favorable character of the line of the survey, is owing to the circumstance of its following the valleys of streams of the second class, which fortunately lie in the proper direction; a remark also applicable to its continuation eastward, through the states of Rhode Island and Massachusetts.

As it respects curvature, the line as surveyed, will compare favorably with the main lines of railroad in this country. The proportion of straight to curved line is as two to one, and the minimum radius of curvature is 1,100 feet. Curves of 1,000 feet radius are to be found upon most railroads. Upon the Western road in Massachusetts, the minimum radius of curvature is 882 feet. Upon the Boston and Worcester it is 600 feet. Upon the Springfield and New Haven 477½ feet. Connecticut river road 900 feet.

The character of the ground for the entire distance, is well suited to the construction of a road bed of a firm and durable character. The excavations in earth, are mostly in gravel and sand, or in a gravel and sandy loam, with but little clay, and very little cemented material or hard pan. The cost of earth excavation can, therefore, be ascertained with more than the usual degree of precision.

A similar remark will apply to the excavations in rock. From New Haven to the eastern base of Portland hill, in Portland, 25 miles, the rock is of a red sandstone, with the exception of a short distance where trap occurs in the ridge at Reed's Gap. The sandstone is very easily excavated. From Portland hill to the east line of the state, the rock is mostly of a uniform character, being what is termined granitic, and for rock of that description is not very difficult to excavate.

The streams crossed by the line of the survey, are all of rather small dimensions, with the exception of the Connecticut river. They are intended to be passed, most of them, by means of substantial stone culverts; and in the cases where bridges are needed, the estimate supposes them to be supported upon permanent stone piers and abutments, with the exception of the two over the Quinnipiac river. Aside from the Connecticut river bridge, the total cost of all the perishable material, which enters into the formation of a single track road bed, for the whole distance of 83 miles, will not exceed twelve thousand dollars.

The streams are supposed to be crossed at such a height as to obviate all danger of injury to the bridges and culverts from floods, and with few exceptions, provision is made in the estimate, for crossing the highways at a higher or lower level, so as to avoid danger of collision with vehicles passing upon them. Chestnut and oak timber for the purposes of the road, can be obtained from the section of country near the road, at a reasonable rate; and the rock taken from the excavations, whether it be sandstone or granite, is well suited and convenient and ample for the structures upon the road.

The estimate of quantities of excavation and haulage, have been made from measurements upon the centre line, with such allowance in particular cases, as the shape of the ground seemed to require. They were predicated upon a width of not less than fifteen feet in embankment, with sufficient additional width in excavation for drainage, etc. The slopes in earth have an inclination of 1½ to 1, and in rock of about ¼ to 1. The estimate of quantities and the prices, are designed to be ample for accomplishing the work in the best manner.

In making the estimates of cost of graduation and mechanical work, the line is supposed to be arranged into sections or divisions, numbering ten in all.

We omit the details of the sections, and merely give the totals and the estimated cost.

Total earth excavation 4,658,700 cub. yds.	$789,157
" rock " 275,400 "	238,070
" masonry 19,964 cubic yards	75,489
Superstructure and bridges	19,910
Clearing and grubbing	21,840
Fencing	52,302
Total	1,196,867
Add Connecticut river bridge	100,000
Total graduation, masonry and bridge	1,296,867
87 miles of single track, (rail 60 lbs. per yard, $73 per ton,) $10,000 per mile	870,000
Land for roadway and depots, buildings, and interest on instalments	140,000
Engineering and miscellaneous, including several road crossings, the position of which not being definitely ascertained, they are not put down in the estimate of sections	80,133
Total for road	2,387,000

Equal to $28,724 43 per mile.

The expenditure necessary for equipping the road with the requisite number of cars and engines, is estimated as follows:

11 eight wheel locomotive engines, $8,000	$88,000
18 passenger cars—eight wheels, $1,800	34,200
6 baggage cars, eight wheels, $950	5,700
50 freight cars, eight wheels	36,000
38 freight cars, four wheels	14,100
	178,000
Add estimated cost of road as above	2,387,000
Total cost of construction and equipment	2,565,000

Equal per mile to $30,866 42.

The rail assumed in the preceding estimate is of the heavier kind, weighing sixty pounds to the lineal yard, and the track is supposed to be of the ordinary width. In view of the character of the road as forming a portion of the great main line of railway between New York and Boston, on which the highest practicable degree of speed and accommodation is required; and in view also of the fact that there has been from the first a progressive increase in the weight of engines, which is likely to continue upon the main thoroughfares, the adoption of a rail heavier than any rail now in use, and other improvements in the plan of construction is recommended. The addition to the cost of the road, in consequence of such a change, including a farther reduction of curvature at particular points, would not, it is believed, exceed the sum of $4,000 per mile, which, if carried out by the co-operation of other companies forming parts of the same main line, would conduce greatly to the interest of the stockholders and the benefit of the public. Upon this subject it is my desire to present to the company, at a future time, my views more in detail.

As the subject of bridging *navigable rivers* will often come up, we give Mr. Johnson's views at length.

With respect to the crossing of the Connecticut river, the facilities for the erection of a bridge at the place proposed, are probably greater than at any other point, for some distance either north or south.

Immediately above the site of the bridge, on the Portland side, are the extensive red freestone quarries, from which, for many years, have been sent large quantities of building stone of a superior quality, to the cities of New York and Boston, and elsewhere.

Stone of large size well adapted for the piers and abutments of the bridge, but of a coarser variety than is suited for a distant market, are now lying ready for use, in much larger quantity than is needed, within a few rods of the crossing, and can be obtained at a very low rate.

The river, at the place of crossing, is divided by an island, into two channels, of equal width. The eastern one only is navigable, the other being closed by a pier extending from the head of the island to the west shore.

The dimensions of the river, etc., are as follows:

Width at ordinary low water	1650 feet.
Greatest depth of navigable channel	15 "
" Western channel	8 "
Mean depth at place of crossing	6 "

Width of navigable channel having ten feet depth of water at low water, 400 feet.

Course of main channel nearly north and south, and straight for two-thirds of a mile above, and the same distance below the bridge.

Velocity of the current as measured during a heavy ice flood, 3½ miles per hour. As the river is influenced by the ocean tides, as far up as a point ten miles above Hartford, or thirty miles nearly above Middletown, the force and velocity of the current at the latter place is, consequently, greatly diminished. So great is the effect thus produced, that when the river is very low, the spring tides produce an *upward* movement of the water at Middletown.

Height of ordinary floods at Middletown from 14 to 16 feet. Two extraordinary floods have occurred within the last 50 years, viz., one in 1801 and the other in 1843, in which the river rose from 20 to 22 feet.

The height or rise of the water above the bridge at Hartford, during floods, is ascertained to be from 5 to 7 feet more than the rise at Middletown.

Least width of the river at the Narrows below Middletown, 625 feet at low water. Greatest depth at same point 66 feet.

The ice disappears opposite the city of Middletown in the spring about ten days on the average earlier than at Hartford. From observations continued through eleven years, it appears that the navigation opens at Middletown in the spring one week earlier, on the average, than at Hartford.

Width of the navigable channel, near Butler's creek, below Middletown, for vessels drawing nine feet water at low water only 70 feet. The channel is so contracted at various places above Middletown, as to render it nearly impossible for vessels to beat up against a strong head wind. The bridge will be passed with very much less difficulty at such times, than some of the narrow portions of the channel above.

The number of vessels of the size of coasters passing Middletown during the season of navigation, to and from Hartford, has not exceeded ten daily on the average, during the past season. This includes steamboats running to New York. As respects any future increase in the number, the effect of the Hartford and New Haven railroad, when that road is relaid with the heavy rail throughout, and made suitable for carrying freight, must be considered. It may possibly be such as to prevent any great increase in the tonnage which the country above Hartford will furnish to the river. The expense of transhipment will be the same at New Haven as at Hartford; and to vessels running south and west, an extent of navigation will be saved more than twice the length of the railway, and whether running in that or any other direction, the difficult navigation of the Connecticut river, for fifty-five miles, will be avoided.

The length of time occupied by sail vessels in making the trip from Hartford to New York, Boston, Philadelphia, or Albany, and return, is from two to four weeks. For propellers, from six to twelve days.

Breadth of the largest sail vessels and propellers, navigating above Middletown, twenty-four to twenty-eight feet.

Average length of the navigable season at Hartford, from observations continued thro' eleven years, two hundred and fifty-seven days; the river is consequently not navigable for about one-third of the year.

The railroad bridge at Middletown, by the provisions of the charter, is to be erected under the supervision of commissioners appointed by the Superior court; the plan of construction to be such as they shall approve. The one assumed in the estimate, is believed to be unexceptionable, since it can be demonstrated that it will neither injuriously retard the flow of the water, or *materially* obstruct the navigation of the river.

The dimensions of the bridge, as assumed in the estimate, are as follows:

Length between abutments, 1,958 feet, or 308 feet more than the width of the river at low water. Height in the clear above low water, 28 feet; to be supported by ten piers, if a retractile draw is used, or eleven piers, if a revolving or pivot draw is adopted. The estimate of cost is considered adequate for either plan of draw. Both are practicable; but the latter is operated with the least power.

Width of piers at top six feet, with the exception of the two on each side of the draw, which are ten feet. Breadth of the centre pier for a pivot draw, twenty feet. The sides of the piers for six feet below the top, are perpendicular; below that point, they slope or batter outward, in the proportion of 1 to 12.

Distance in the clear between contiguous piers, 180 feet. Corresponding in this respect and in the size of the piers, with the railroad bridge across the Connecticut at Springfield.

Piers pointed at both ends, with the salient angle of the cutwater or starlings inclined so as to prevent the lodging of ice against them.

Area of transverse section of the river at highest flood, 47,260 square feet. Area of space occupied by the piers, etc., 3,020 square feet; equal to one-fifteenth part nearly of the transverse section, which will produce an acceleration of the current during a flood in the same ratio, equal to one-fourth of a mile per hour. This is upon the supposition that the section and depth is not increased by the slight abrasion of the bottom, produced by the acceleration. Practically, the acceleration will not, probably, exceed one-sixth of a mile per hour.

The difference of level requisite to give the acceleration of one-fourth of a mile per hour, is less than the one-thirtieth part of an inch. This, therefore, is the greatest possible rise caused by the obstruction presented by the piers, to the flow of the water during floods; an amount so small as not to be detected by the eye, or even by the ordinary modes of measurement.

With respect to the probable rise of the water, caused by the lodging of the ice against the bridge, the experience of the railroad bridge at Springfield, is believed to be conclusive, that no injury is thereby to be apprehended. The greatest ice flood known for fifty years, occurred in 1843, after the erection of this bridge, and there was, as I am informed, no accumulation of ice against it.

The contraction in the width of the river, two and a half miles below the city of Middletown, to an amount equal only to *one-third* of its breadth at the site of the bridge, is evidence that the bridge will not tend to aggravate any existing difficulty, so far as the stop-

page of ice is concerned. The formation of a dam of ice at the bridge, is not to be feared, even if the movement of the ice should be arrested by it, which is by no means probable, inasmuch as a rise of the water of a very few feet, would throw the floating ice onto the low meadows which cover many hundred acres, and which are situated just above the site of the bridge, on the west side of the river. The favorable position of these meadows, and of the Wangum meadows, two miles above, as a receptacle for floating ice, will be apparent from an inspection of the map.

The bridge, by the conditions of the charter, is to be provided with a draw, the opening presented by which is to afford a clear space or width for the passage of vessels of eighty-five feet. It is designed to cover the faces of the piers, on both sides of the draw, with elastic timber fenders placed vertically. These fenders will serve as cushions to receive the force of the vessel, when inclined to rub against the masonry of the piers. The tendency of the current being *from* the piers on either side, and the width of the draw so great, contact with its sides may, with ordinary care, be avoided. The draw is to be constructed wholly of iron, and the parts so arranged as to be easily adjusted. Its weight upon the retractile plan is computed at seventy-five tons. Upon the pivot plan it will be a little greater. The frame of the draw will, in either case, have a length about twice the width of the opening. In either case, also, it is to be moved upon solid iron ways, and supported upon wheels in such a manner as to avoid nearly all resistance from rubbing friction.

The resistance to motion will consequently be less than for the same weight on a level railway, or less than eight pounds per ton; probably not more than five or six pounds per ton, requiring a force of not more than four hundred and fifty pounds to overcome it, with something additional to put the draw in motion. If moved, as it can be, by two men, at the moderate rate of one mile per hour, it can be closed or opened in one minute. The fifty-four feet retractile draw over the Schuylkill is closed by two men, or opened, in one minute, and with extra exertion, in thirty-five seconds.

The draw may be operated by manual force, or by a small steam engine, which can be use for other purposes, when not required to operate the draw. The pivot draw is necessarily heavier than the retractile, but requires less power to operate. One with two openings of sixty feet each, in a road bridge on Long Island, is operated by a woman, and opened or closed by her in one minute. The draw in the new railroad bridge over the Housatonic, is being constructed on the pivot plan, with one opening of sixty feet, and the other of fifty feet.

The width of the draw in the proposed bridge over the Connecticut, is nearly *double* that of the largest steamers navigating that river; the widest measuring from outside to outside of wheel houses only forty-eight feet. It is, also *treble* that of the largest sized sail vessels and propellers. It is of unexampled dimensions, the widest known being only 70 feet. By the provisions of the charter, it is to remain open except when trains are passing; that is to say it will probably not be closed more than one hour out of every twenty-four. A sail vessel of twenty-two feet beam, capable of running within four and a half points of the wind, can beat through the draw against an ordinary current, with wind ahead, *without changing its course.* The customary mode of passing draws in such cases, however, is to change, or partially change, the course of the vessel in the draw.

There will be, however, but little occasion for passing the draw at such times, as the river above is navigated with the greatest difficulty, when the wind is adverse, by vessels ascending. The greatest number of sail vessels, *coasters*, that have passed the draw of the Schuylkill bridge in one day, is one hundred and eighty, and the draw remaining open on the average four and a half minutes for each vessel. The detention to the vessels was of course less than that.

The Schuylkill bridge has two retractile draws, one for the railway, and the other for the common travel, placed side by side. This latter, owing to the throng of vehicles, being near the city of Philadelphia, is closed at all times, except when required to be opened for the passage of vessels. The draw on the side of the railroad is closed only a few times each day, for the passage of trains.

There is no reason why sail vessels should experience any more detention at the draw at Middletown, than at the one on the Schuylkill. On the contrary it is evident there will be less detention at the former than at the latter, for the reason that it is more accessible, being in the centre of a wide channel, instead of at the extreme end of a bridge, under cover of a high bank, as is the case with the draw in the Schuylkill bridge. The draw is to be *thirty one feet wider* than the one on the Schuylkill. It will seldom be found closed on the arrival of vessels; the channel is straight and broad for some distance above and below; and there is no good reason to suppose that the detention to sail vessels passing up and down, will exceed *seven minutes*, on the average, to each vessel, which for a voyage of two to four weeks, (and the trips from Hartford to New York, Philadelphia, Albany and Boston, are seldom made in less time) cannot be considered other than as a very trifling inconvenience, and *cannot produce any perceptible effect upon the price of freight.* A similar remark will apply to steamers and propellers, with the exception that the detention and inconvenience resulting from the passage of the draw, will be less even than that of navigating the same distance, in places where the channel is narrow, inasmuch as the draw will be lighted at night, so that its precise position cannot be mistaken.

To enter a little more fully into the subject of obstruction to the navigation of the river by the proposed bridge, it may be stated, that if a navigable river is bridged in the midst of a city, the navigating interests of the portion of the city above and contiguous to the bridge, will be likely to be impaired for the reason that there will not be distance in which to obtain sufficient headway for the steerage of vessels through the draw in descending, and the anchorage above the bridge will not be as safe as below it. Add to this that vessels often receive and discharge their loads at different places in the same city, which it will be inconvenient to do, if a bridge intervenes in passing from one dock to another.

The portion of the city above the bridge, is presumed to have precisely the same relation to the business of the adjoining country as the portion below. The inconvenience of passing the bridge and the draw, although it may be comparatively slight, is quite sufficient to turn the scales in favor of the part below. But when a place is situated far enough above, to be clear of the evils named, of close proximity to the bridge, and in a position to command the business of an entirely different range of country, the injury caused by the bridge resolves itself into the mere delay in passing the draw, as compared with the whole time in which trips to prominent points are made: which, in the case of the proposed bridge at Middletown cannot, as shown above, produce any sensible difference in the time of making the trips, or any perceptible injurious effect upon the business of a place so far removed from Middletown, as is the city of Hartford. It most certainly will produce no injury which can justify a successful opposition to a bridge which is indispensable to the best interests of a large portion of the people of the State, and to the accomplishment of a work which is more truly national in its character, than any existing or projected line of railway in this State, or in New England.

The examples most likely to be adduced of the effect of draw bridges, upon places situated above them, by those inclined to dissent from the view taken above, are those of the bridge over the Hudson river at Troy, and over the Passaic river at Newark, New Jersey. These bridges are, however, in no respect parallel cases to the proposed bridge at Middletown. In neither case is there any considerable extent of even tolerable navigation above, which would render it very desirable for vessels to ascend, if the bridges were removed. This is evident from the fact that in both cases, canals from the interior were made to terminate some distance below where the bridges have *since* been erected—showing, conclusively, that they are above the limit of good natural navigation.

To be Continued.

Nashville Railroad.

The Chattanooga Gazette says: "the amount of private subscriptions to the Nashville and Chattanooga railroad is now $1,800,000. The board of directors are endeavoring to get the legislature to appropriate $500,000 more, to enable the State to obtain the subscription of $1,000,000 from the cities of Charleston and New York. Mr. Stevenson and Governor Jones have both addressed the members of the legislature on behalf of the road."

Substitute for the Fan Blast.

Possibly the following extract from the proceedings of the Institution of Mechanical Engineers, may be interesting to some of our readers.

The paper read by the secretary was from Mr. Clift, "On Jones's Gas Exhauster, a substitute for the fan blast."—It was as follows:—"Jones's gas exhauster is a machine invented for the purpose of taking the gas from the retorts as fast as it is generated, and forcing it into the gas holders, in order to relieve them of the backward pressure. It has been at work for the last four years in many large manufactories with great success, and it has occurred to me that it might be used with equal advantage as a substitute for the fan, in blowing cupolas or smithies. The machine consists of a spheroidal case, flat sided, into which are fitted two revolvers of a peculiar shape, which turn on separate axes, and are so fixed in relation to each other that in every part of their revolution there must be a complete separation between the air on one side of them and that on the other. Motion is given to these revolvers by means of a pulley upon the axis of the lower one, on the other end of which axis is a toothed wheel, working in another toothed wheel of equal number on the end of the axis of the revolver, thus causing them to work in perfect uniformity. The action of the apparatus is precisely that of two pistons working within two chambers alternately opening and closing, and delivering at each revolution a quantity of air equal to the contents of each chamber. As there are no data of the quantity of air a fan of a given size will discharge, I cannot compare the efficacy of the exhauster with it; but when I see that the best constructed fan, at its great velocity, will only maintain a density of air equal to a column of water of 10 in., or a pressure of about 15 oz. on the square inch, and that the exhauster will maintain a density of 50 in., or about 75 oz., on the square inch, and that with a comparative small amount of power, I am led to believe that some advantage exists in the exhauster over the fan. In an experiment I recently made with an exhauster, 2 ft. by 1 ft. 6 in., and 1 ft. thick, I found I could discharge 30,000 cubic feet of air per hour, with a constant resistance of 15 oz. on the square inch. This (according to the theory of re-smelting iron in a cupola which allows 36,000 cubic feet or 2,700 lbs. of air to one ton) would be nearly equal to 1 ton of iron per hour, and with an expenditure of not more than 2 horse power. This quantity, of course, could be considerably increased by using a larger sized exhauster. Mr. Clift observed that it was a spheroidal figure, in which curved figures were revolving in different directions, and the air being admitted was thrown into the receiving chamber at every revolution. Each revolution throws out a portion of air equal to the chamber.—Mr. Buckle affirmed that the revolver would not answer if driven with spur wheels, as the rate of velocity required to produce any great amount of pressure, and quantity for cupolas or smelting purposes would endanger the safety of the wheels.—Mr. Clift replied, that Messrs. Elkinton, Mason & Co., of Birmingham, had been in the habit of using a fan for the blowing purposes of their manufactory, but had lately removed it, and substituted Jones's exhauster in its place; and they had found it to answer their purposes much better, as they had a greater density than formerly. He also stated that a larger one was in course of erection, and after it had been tried he would report to the institution the result."

Public Works of Ohio.

We learn, says the Baltimore American, from the annual report of the board of public works of Ohio, that the Ohio and Miami canals—the original cost of which was $5,732,755—netted to the State last year, after paying all expenses, an interest of nearly 7¼ per cent. Most of the money borrowed for the construction of these works was obtained at five per cent.

The canals of more recent construction, which cost the State $9,389,747; netted to the State last year, after paying all expenses, not quite 1½ per cent. on the sum named.

These statements only show, however, the direct results arising from the public works of Ohio. The indirect results are seen in the increased facilities which they afford the farmer for sending his products to market, and in the enhanced value of these products, as well as of the land in almost every part of the State.

Annexed are some views of the commerce of Ohio, as developed by the report of the board.

"In submitting the annual statement of the business of the canals, the board feel a pleasure in congratulating the State on a much enlarged income for the past year. The revenue collected on the different works has reach the aggregate of $805,020, against $612,302 received last year.

"The receipts for 1846, it will be remembered, exceeded the receipts of any previous year by $78,396. Those of 1847 exceed the last year $192,718.

"On the Ohio canal, the shipments of wheat and flour exceed those of any previous year by an amount equal to 991,213 bushels of wheat, the grand aggregate being 5,884,595 bushels. At Cleveland, the receipts of flour exceed those of last year 314,789 barrels, wheat 597,984 bushels, corn 824,347 bushels, coal 361,956 bushels, (about 12,000 tons,) wool 471,753 pounds, iron, nails and spikes 4,400,986 pounds, (2,200 tons,) the aggregate of these three last being 19,155,192 pounds, (nearly 10,000 tons. There is also an increase in the merchandise cleared at Cleveland of 3,848,500 lbs., (1,900 tons.)

"The steady and continued increase in the coal, iron and wool trade, is a source of congratulation to the country, as there are strong indications that they will soon stand among the first in importance, both as an item of business on our canals, and as a source of wealth and revenue to the State. The growing importance of the coal trade, especially, cannot longer be overlooked; and when we take into consideration the immense extent of country which will soon be dependent on eastern Ohio and northwestern Pennsylvania for its supplies of fuel, in connection with the great demand which the navigation of the lakes make on the same sources, there can be but little doubt that the coal trade will, before many years, stand second in extent to no other."

The following table of the articles arrived at, and clearing from Cleveland, in 1847, is interesting:

	Arrived.	Cleared.
Wheat and flour,	136,828	147 tons.
Coal,	42,451	236 "
Corn,	38,702	646 "
Pork, bacon and lard,	3,717	13 "
Iron (all kinds) and nails,	9,761	830 "
Lumber,	1,343	4,742 "
Salt,		5,924 "
Merchandize,	997	7,179 "
All other articles,	38,197	7,275 "
	271,977	26,092 "

The amount of tolls during the year ending November 15, 1847, was $452,530 76
The amount last year was 336,339 69

Being an increase over last year $116,191 07
About 34 per centum increase.

TO LOCOMOTIVE AND MARINE ENgine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut Sts., Philadelphia 1tf

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.
1y10 New York.

IMPORTANT TO ENGINEERS, CONtractors, and Surveyors.—The Engineer's, Contractor's and Surveyor's Pocket Table Book, by J. M. Scribner, A. M., 264 pages, 24 mo; tuck binding, with gilt edge. Published by Huntington & Savage, 216 Pearl street, New York.

The above work comprises Logarithms of Numbers, Logarithmic Sines and Tangents, Natural Sines and Natural Tangents; the Traverse Table, and a full and extensive set of tables, *exhibiting at one view the number of cubic yards contained in any embankment or cutting, and for any base or slope of sides usual in practice.* Besides these essential tables, the work comprises 50 pages more of Mensuration, Tables, Weights of Iron, Strength of Materials, Formulas, Diagrams, etc., for laying out railroads, canals and curves; much of which has never before been offered to the public, and all dispensable to the engineer. This book will prove a great saving of time, and will enable the new beginner to furnish results as accurately (and with much greater rapidity) as the most experienced in the profession without its aid. The tables of Logarithms, etc., have been carefully corrected and compared with *different* editions of the same tables; and *all* the tables throughout the book have been read carefully by proofs four times; hence the most implicit confidence may be placed in their correctness.

Also, *Scribner's Engineer's and Mechanic's Companion*, new edition, 264 pages, enlarged, with 35 pages of entirely new matter, and much improved throughout.

It is believed these books are so well adapted to suit the above professions, that they cannot *afford* to do without them, and that they will aid in rewarding well directed mental labor.

Both are for sale by all the principal booksellers throughout the United States and Canada.

NOTICE TO RAILROAD CONTRACTORS. The completion of the Western and Atlantic Railroad of the State of Georgia, from Dalton to Chattanooga on the Tennessee river—38 miles, and a tunnel for a single track, 1400 feet long.

Sealed proposals will be received, until the 20th day of March next, at the Chief Engineer's office, of the Western and Atlantic Railroad in Atlanta, Georgia, for the completion of the grading and masonry, the bridging, superstructure, iron rails and fastenings, single track tunnel 1400 feet long, depots, turn tables, turnouts, pumps and everything else necessary for the reception of the locomotives and cars, on that portion of the Western and Atlantic railroad lying between Dalton and Chattanooga.

Proposals are invited for *detached portions* of said work, and also for *the whole in one contract*, according to the Act of the Legislature, approved the 30th December, 1847.

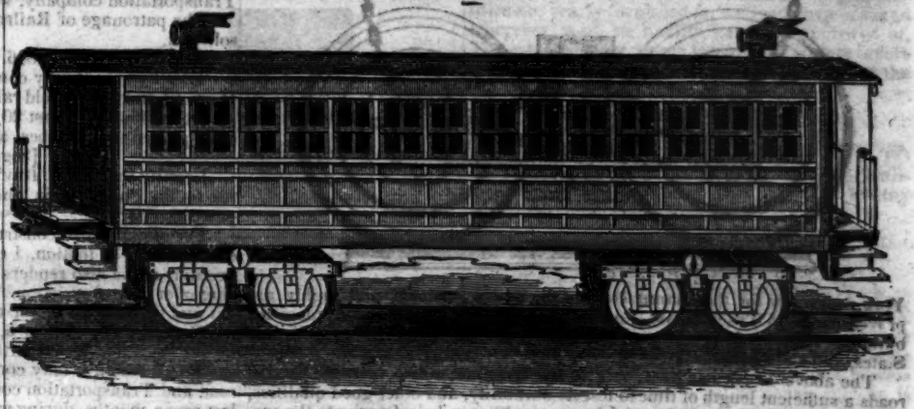
Plans and specifications can be examined, and detailed information given at the Chief Engineer's office, in Atlanta, on and after the 21st of February next.

GEO. W. TOWNS, *Governor.*
WM. L. MITCHELL, *Chief Engineer.*
Atlanta, Ga., January 24, 1848. [7t6]

RAILROAD IRON AND LOCOMOTIVE Tyres imported to order and constantly on hand by

A. & G. RALSTON
Mar. 20tf 4 South Front St., Philadelphia.

DAVENPORT & BRIDGES'
CAR WORKS, CAMBRIDGEPORT, MASS.

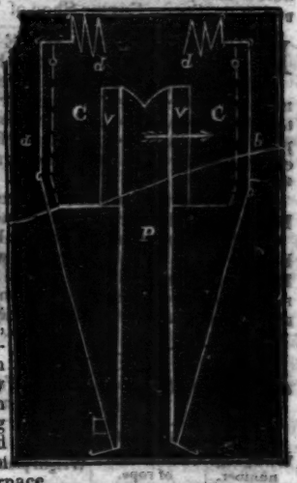


Manufacture to Order, Passenger and Freight Cars of every description, and of the most improved pattern; also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices.

All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—Omnibuses pass every fifteen minutes. 10tf

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved Spark-Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger & freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

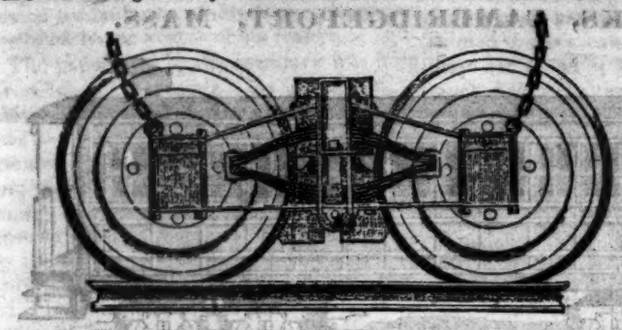
LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address

SAM'L KIMBER & CO.,
Willow Street Wharf,
1tf Philadelphia, Pa.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to

MURDOCK, LEAVITT & CO.,
Agents.
1y48 17 Pine St., New York.

RAY'S EQUALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the best and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL, Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. [Signed,] JOHN LEACH, Sup't Motive Power.

1y19

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	21	–	50	15-16	20
13	3¼	8	3	8½	16	–	27	11-16	13½
14	3¼	6	11	7½	12	8	17	9-16	10½
15	2½	5	2	6½	9	4	13½	1-2	7½
16	2¼	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 *cwt. for every lb. weight per fathom, so that a rope weighing* 5 *lbs. per fathom would safely lift* 3360 *lbs., and so on in proportion.* 1y24

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y26 Philadelphia, Pa.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee G. A. NICOLLS,
ja15 *Reading, Pa.*

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a15 N. E. cor. 12th and Market sts., Philad., Pa.

THE NEWCASTLE MANUFACTURING Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,
a15 President of the Newcastle Manuf. Co.

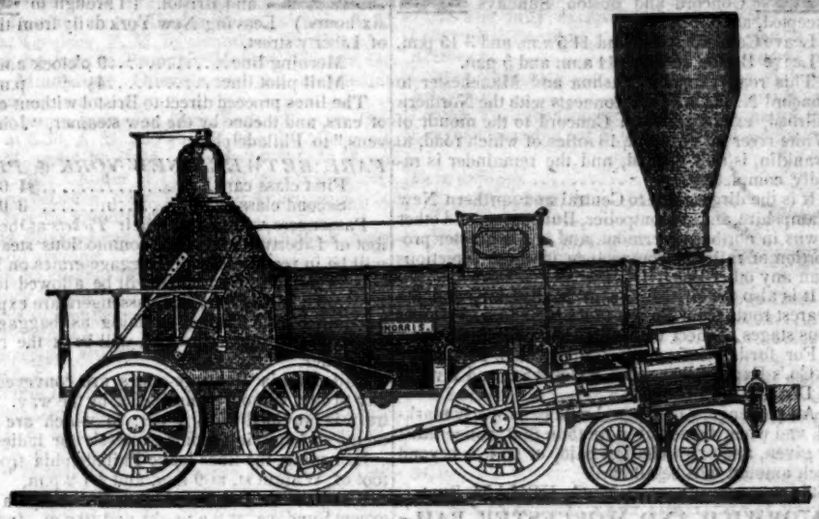
KEARNEY FIRE BRICK. F. W BRINLEY, Manufacturer, Perth Amboy N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms mos. from delivery of brick on board. Refer to

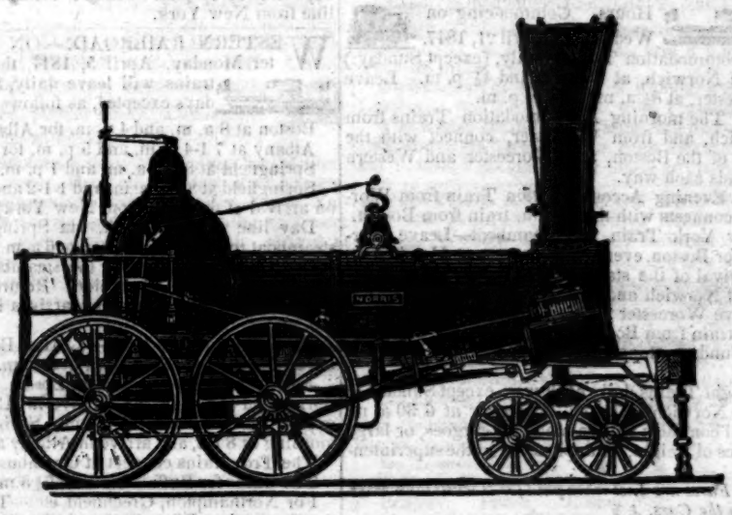
James P. Allaire, Peter Cooper, Murdock, Leavirt & Co. } New York.
J. Triplett & Son, Richmond, Va.
J. R. Anderson, Tredegar Iron Works, Richmond, Va.
J. Patton, Jr. & Colwell & Co. } Philadelphia, Pa.
J. M. L. & W. H. Scovill, Waterbury, Con.
N. E. Screw Co. & Eagle Screw Co. } Provicence, R. I.
William Parker, Supt. Bost. and Worc. R. R.
New Jersey Malleable Iron Co., Newark N. J
Gardiner, Harrison & Co. Newark, N. J

25,000 to 30,000 made weekly. 35

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS' BROTHERS.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
Paterson, N. J., or 60 Wall street, N. York.

PIG AND BLOOM IRON.—THE SUBSCRIbers are agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniatta Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of iron is solicited by

A. WRIGHT & NEPHEW,
12tf Vine St. Wharf, Philadelphia.

T. & C. WASON, Manufacturers of every style of Freight and Baggage Cars.—Forty rods east of the depot, Springfield, Mass.

Running parts in sets complete, Wheels, Axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N.B. Particular attention paid to the manufacture of the *most improved* Freight Cars. We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Mass., Railroads, where our cars are now in constant use.

Dec. 25, 1847.—1y

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engaged in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required; large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,
1y Albany Iron and Nail Works.

THE SUBSCRIBERS ARE PREPARED TO execute orders at their Phœnix Works for Railroad Iron of any required pattern, equal in quality and finish to the best imported.

REEVES, BUCK & CO.,
Philadelphia.

ROBERT NICHOLS, Agent,
26tf No. 79 Water St., New York.

CHILLED RAILROAD WHEELS.—THE undersigned are now prepared to manufacture their Improved Corrugated Cat Wheels, or Wheels with any form of Spokes or Disks, by a new process which prevents all strain on the metal, such as is is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St. below 13th,
Nov. 10, 1847. [tf.] Philadelphia, Penna.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand.

ja45

RAILROAD IRON—800 TONS OF THE latest and most improved pattern of T Rail—weighing about 60 lbs. to the yard, for sale by

BOORMAN, JOHNSTON & CO.,
1m ja 1 119 Greenwich St., New York.

BOSTON AND MAINE RAILROAD. Upper Route, to Portland and the East.

WINTER ARRANGEMENT,

Commencing October 4, 1847.

PORTLAND TRAINS.

Leave Boston at 7 A.M. and 2½ P.M.
Leave Portland at 7½ A.M. and 3 P.M.

GREAT FALLS TRAIN.

Leave Boston at 3½ P.M.
Leave Great Falls at 6½ A.M.

LAWRENCE TRAINS.

Leave Boston at 7, 11½ a.m., 2½, 3½, 5½ p.m.
Leave Lawrence at 7, 8½, 11 a.m., 3½, 6½ p.m.

HAVERHILL TRAINS.

Leave Boston at 11½ A.M. and 5½ P.M.
Leave Haverhill at 7 A.M. and 3½ P.M.

READING TRAINS.

Leave Boston at 8½ A.M. and 6½ P.M.
Leave Reading at 6 50 A.M. and 1½ P.M.

MEDFORD BRANCH TRAINS.

Leave Boston at 7½, a.m., 12 m., 2½, 4½, 6 p.m.
Leave Medford at 7, 8½, a.m., 1½, 3½, 5 p.m.

The Depot in Boston is on Haymarket Square.

1y31 CHAS. MINOT, *Sup't.*

BOSTON AND PROVIDENCE RAILROAD. Passenger Notice. Summer Arrangement. On and after Monday, April 5, 1847, the Passenger Trains will run as follows:

Steamboat train via Stonington—Leaves Boston every day, except Sunday, at 5 o'clock p.m.

Accommodation Trains—leave Boston at 7 and 10½ a.m. and 4 p.m., and Providence at 7½ and 10½ a.m. and 4½ p.m.

Dedham trains, leave Boston at 8 a.m., 12½, 3½, 6½ and 9 p.m., Leave Dedham at 7 and 9½ a.m. and 2½, 5½ and 8 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 5½ p.m. Leave Stoughton at 7 10 a.m. and 3½ p.m.

All baggage at the risk of the owners thereof.

25tf W. RAYMOND LEE, *Sup't.*

NEW YORK & HARLEM RAILROAD CO.—Summer Arrangement.—On and after Tuesday, June 1st, 1847, the cars will run as follows, until further notice. Up trains will leave the City Hall for—Yorkville, Harlem and Morrisana at 6, 8 and 11 a.m., 2, 2 30, 5 and 7 p.m.

For Morrisiana, Fordham, Williams' Bridge, Tuckahoe, Hart's Corner and White Plains, 7 and 10 a.m., 4 and 5 30 p.m.

For White Plains, Pleasantville, Newcastle, Mechanicsville and Croton Falls, 7 a.m. and 4 p.m.

Freight train at 1 p.m.

Returning to New York, will leave—

Morrisiana and Harlem, 7, 8 20 and 9 a.m., 1, 3, 4 30, 6, 6 28 and 8 p.m.

Fordham, 8 08 and 9 15 a.m., 1 20 and 6 15 p.m.

Williams Bridge, 8 and 9 08 a.m., 1 10, 6 08 p.m.

Tuckahoe, 7 38 and 8 25 a.m., 12 55 and 5 52 p.m.

White Plains, 7 10 and 8 35 a.m., 12 50, 5 35 p.m.

Pleasantville, 8 15 a.m. and 5 15 p.m.

Newcastle, 8 a.m. and 5 p.m.

Mechanicsville, 7 48 a.m. and 4 48 p.m.

Croton Falls, 7 30 a.m. and 4 30 p.m. Freight train at 10 a.m.

Freight train will leave 32d street for Croton Falls and intermediate places, 4 a.m and City Hall 1 p.m.

Returning, leave Croton Falls 10 a.m. and 9½ p.m.

ON SUNDAYS, the trains will run as follows:

Leave City Hall for Croton Falls, 7 a.m. 4 p.m.

Croton Falls for City Hall, 7 30 a.m., 4 30 p.m.

Leave City Hall for White Plains and intermediate places, 7 and 10 a.m. 4 and 5 30 p.m.

White Plains for City Hall, 7 10 and 8 35 a.m., 12 30 and 5 35 p.m.

Extra trains will be run to Harlem, Fordham and Williams Bridge on Sunday, when the weather is fine.

The trains to and from Croton Falls will not stop on N. York island, except at Broome st. and 32d st.

A car will precede each train 10 minutes to take up passengers in the city.

Fare from New York to Croton Falls and Somers $1, to Mechanicsville 87½c, to Newcastle 75c., to Pleasantville 62½c. to White Plains 50c. 25tf

CONCORD RAILROAD.—PASSENGER Trains in connection with the Lowell & Nashua Railroads, run daily between Concord and Boston, Sundays excepted, as follows, viz:

Leave Concord at 5 40 and 11 5 a.m. and 3 15 p.m.

Leave Boston at 7 and 11 a.m. and 5 p.m.

This road runs by Nashua and Manchester to Concord N. H., where it connects with the Northern railroad, extending from Concord to the mouth of White river in Vermont, 18 miles of which road, to Franklin, is now opened, and the remainder is rapidly completing.

It is the direct route to Central and northern New Hampshire, and to Montpelier, Burlington, and other towns in northern Vermont, and has a greater proportion of railroad conveyance in those directions than any other line.

It is also the British Steam Mail Line, and the nearest route from Boston to the Canadas. Numerous stages connect with all parts of the road.

For further information, apply at B. P. Cheney & Co.'s Express office, No. 8 Court St., and Averill & Dean, No. 15 Elm St.

All passengers' baggage should be properly marked, and when valued at more than $50, notice must be given, and extra charges paid, or no loss beyond such amount will be allowed.

26tf N. G. UPHAM, Supt.

NORWICH AND WORCESTER RAILROAD. Summer Arrangement. Change of Hours. Commencing on Wednesday, April 21, 1847.

Accommodation Trains, daily, (except Sunday.) Leave Norwich, at 6 a. m., and 4½ p. m. Leave Worcester, at 8½ a. m., and 4½ p. m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 2½ p.m. train from Boston.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 6½ p.m., daily, except Sunday, stopping at Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Leave Norwich at 7, and Worcester at 6 30 a. m. Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J. W. STOWELL, Sup't

LONG ISLAND RAILROAD COMPANY. Summer Arrangement. On and after Monday May 1st, trains will run as follows, except Sundays:

Leave—Brooklyn at 9 1-2 a.m. for Farmingdale, 1 1-2 p.m. for Greenport, at 4 p.m. for Farmingdale.

Leave Farmingdale at 7 a.m for Brooklyn, 12 m. do. at 3 1-4 do. do.

Leave Greenport at 8 1-2 a.m. for Brooklyn.

Leave Jamaica at 8 a.m. for Brooklyn, at 1 p.m. do. at 4½ p.m do.

On Saturdays, a train will leave Brooklyn for Yaphank, at 4 p.m. Leave Yaphank, on Mondays for Brooklyn at 5 1-2 a.m.

On and after May 15th, and until September 1st, 1847, a train will leave Jamaica at 7 a.m. for Brooklyn—leave Brooklyn at 6 p.m. for Jamaica, and will land and receive passengers at any place between Brooklyn and Jamaica.

On Sundays—leave Brooklyn at 8 1-2 a.m. for Farmingdale; leave Farmingdale at 4 p. m. for Brooklyn.

Freight Trains—leave Brooklyn at 10 a.m. for Greenport; leave Greenport at 12 m. for Brooklyn.

Baggage crates will be in readiness at the foot of Whitehall street, to receive baggage for the several trains, 30 minutes before the hour of starting from the Brooklyn side.

The steamer "Statesman," Captain Nash, leaves Greenport for Sag Harbor on the arrival of the Accommodation train from Brooklyn.

15tf DAVID S. IVES Sup't.

**NEW YORK AND PHILADELPHIA RAILroad line—direct. Via Newark, New Brunswick, Princeton, Trenton, and Bristol. (Through in six hours.) Leaving New York daily from the foot of Liberty street.

Morning line.....9 o'clock a.m.
Mail pilot line.....4½ " p.m.

The lines proceed direct to Bristol without change of cars, and thence by the new steamer, "John Stevens," to Philadelphia.

FARE BETWEEN NEW YORK & PHILA.

First class cars.....$4 00
Second class cars..... 3 00

Passengers will procure their *Tickets* at the office foot of Liberty st., where a commodious steamboat will be in readiness with Baggage-crates on board.

Fifty pounds of baggage will be allowed to each passenger in this line, and passengers are expressly prohibited from taking anything as baggage but their wearing apparel, which will be at the risk of the owner.

Philadelphia Baggage-crates are conveyed from city to city, without being opened by the way. Each train is provided with a car, in which are apartments and dressing rooms expressly for ladies' use

Returning, the lines leave Philadelphia from the foot of Walnut st. at 9 a.m, and 4 1-2 p.m.

The lines for Baltimore leave Philadelphia daily except Sundays, at 8 a.m., 3½ and 10 p.m., and Sundays only at 10 p.m.—being a continuation of the line from New York. 25tf

WESTERN RAILROAD.—ON AND AFter Monday, April 5, 1847, the passenger trains will leave daily, Sundays excepted, as follows:

Boston at 8 a. m. and 4 p. m. for Albany.

Albany at 7 1-4 a. m. and 5 p. m. for Boston.

Springfield at 8 1-2 a. m. and 1 p. m. for Albany

Springfield at 8 1-2 a. m. and 1 1-2 and 3 p. m. (or on arrival of the train from New York) for Boston.

Day line to New York, via Springfield.—The steamboat train leaves Boston at 6 a. m., and arrives in New York at 7 p. m., by the steamboats Traveller, New York, or Champion. Returning, leaves New York at 6 1-4 a. m., and arrives in Boston at 7 p. m.

Night line to New York.—Leaves Boston at 4 p. m., and arrives in New York at 5 a. m.

Albany and Troy.—Leave Boston at 8 a. m., Springfield at 1 p. m., and arrive in Albany at 6 p. m.; or, leave Boston at 4 p.m., Springfield next morning at 8 1-2, and arrive in Albany at 1 1-2 p.m.

The Troy trains connect at Greenbush.

The trains for Buffalo leave at 7½ a.m. and 7 p.m.

For Northampton, Greenfield, etc.—The trains of the Connecticut River Railroad leave Springfield at 8 1-4 a.m., 1 and 3 p.m., and passengers proceed directly on to Bratlleboro', Windsor, Bellows Falls, Walpole, Hanover, Haverhill, etc.

For Hartford.—The trains leave Springfield on the arrival of the trains from Boston.

The trains of Pittsfield and North Adams Railroad leave Pittsfield on the arrival of the trains from Boston.

N. B.—No responsibility assumed for any baggage by the passenger trains, except for wearing apparel not exceeding the value of fifty dollars, unless by special agreement.

JAMES BARNES, Sup't and Eng'r.
C. A. SEAD, Agent, 27 State street, Boston.

GREAT SOUTHERN MAIL LINE, VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

NEW YORK AND ERIE RAILROAD LINE SUMMER ARRANGEMENT. For passengers, twice each way daily, (except Sunday,) leave New York from the foot of Duane St. at 7 o'clock, A. M. and at 4 o'clock, P. M. by steamboat, for Piermont, thence by cars to Ramapo, Monroe, Chester, Goshen, Middletown, Otisville, and the intermediate stations.

The return trains for New York will leave Otisville at 6 30, A. M. and 4 15, P. M.; Middletown at 7 A. M. and 4 40, P. M.; Goshen at 7 22, A. M. and 5 3, P. M.; Chester at 7 35, A. M. and 5 18, P. M.

Fare between New York and Otisville, $1 50; way-fare in proportion.

FOR MILK—Leave Otisville at 5½ o'clock, morning and evening.

FOR FREIGHT—The barges "Samuel Marsh and "Henry Suydam, Jr." will leave New York (from the foot of Duane St.) at 5 o'clock, P. M. daily (except Sundays.)

No freight will be received in New York after 5 o'clock, P. M.

Freight for New York will be taken by the trains leaving Otisville at 10½ o'clock, A. M.; Middletown at 11½, A. M.; Goshen at 12½, P. M.; Chester at 1 o'clock, P. M., etc., etc.

For farther particulars, apply to J. F. CLARKSON, Agent, corner of Duane and West Sts., New York, or to S. S. POST, Superintendent Transportation, Piermont.

24tf H. C. SEYMOUR, Sup't.

LITTLE MIAMI RAILROAD COMPANY. Fall and Winter Arrangement, 1847. On and after Monday, September 20th, until further notice, a Passenger train will run as follows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield. Returning, will leave Springfield at 4½ a.m. Upward train arrives at Springfield at 2½ p.m. Downward train arrives at Cincinnati at 10½ a.m.

Freight trains will run each way daily.

Messrs. Neil, Moore & Co. are running the following stage lines in connection with the road:

A daily line from Xenia to Columbus and Wheeling, carrying the great Eastern mail.

Daily lines from Springfield to Columbus, Zanesville and Wheeling. Also to Urbana and Bellefontaine.

A line of Hacks runs daily in connection with the train between Deerfield and Lebanon.

Passengers leaving for New York and Boston, arrive at Sandusky city via Urbana, Bellefontaine & the Mad River and Lake Erie railroad, in 27 hours, including several hours' sleep at Bellefontaine. To the same point via Columbus, Delaware, Mansfield and the Mansfield and Sandusky city railroad, is 32 hours. Distance from Cincinnati to Springfield by railroad.....84 miles.

From Springfield to Bellefontaine by stage, over a good Summer road.....32 "

From Bellefontaine to Sandusky city by railroad.....102 "

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sandusky city 7 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

47tf W. H. CLEMENT, *Sup't.*

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m. Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above. 351y

CENTRAL AND MACON AND WESTern Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlaniic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20	pr. 100 lbs. 35
Crockery, per cubic foot	0 15	" " 35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price.

Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

CENTRAL RAILROAD—FROM SAVANnah to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and Freight. Rates of Passage, $8 00. Freight—

On weight goods generally...	50 cts. per hundred.
On measurement goods.....	13 cts. per cubic ft.
On brls. wet (except molasses and oil).....	$1 50 per barrel.
On brls. dry (except lime)...	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery.....	40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....	$5 00 per hhd.
On molasses and oil.....	$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

r25 JOHN KING, Jr, *Agent.*

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

AMERICAN RAILROAD JOURNAL.
OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance.*

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One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One column "	3 00
One square "	1 00
Professional notices per annum	5

☞ LETTERS and COMMUNICATIONS for this Journal may be directed to the *Editor,*
D. K. MINOR.